

## CLAIMS

What is claimed is:

1. A mobile platform refueling system, comprising:
  - a refueling boom;
  - a plurality of targeting sights positionable on the boom; and
  - at least one digital camera operable to receive each of a plurality of individual images of the targeting sights and convert each individual image to one of a plurality of pixel images.
2. The system of Claim 1, comprising a computer system in communication with the digital camera operable to determine a boom displacement using at least two of the pixel images.
3. The system of Claim 2, wherein said boom is deflectable within a maximum allowable bending envelope, the envelope storable in the computer system.
4. The system of Claim 3, comprising:
  - a set of flight control surfaces positionable on the boom;
  - a boom null position being storable in the computer system;
  - wherein a difference between the boom displacement and the null position

is determinable in the computer system, and a boom flight control signal transferable from the computer system to the flight control surfaces operably corrects the boom displacement.

5. The system of Claim 4, wherein the set of flight control surfaces comprises at least a boom rudder.

6. The system of Claim 4, wherein the set of flight control surfaces comprises at least a boom aileron.

7. The system of Claim 4, wherein the boom comprises an extendable boom having a fixed tube section and an extendable section slidably disposed within the fixed tube section.

8. The system of Claim 7, wherein both the fixed tube section and the extendable section include an external surface having a portion of the targeting sights connectable thereon.

9. A mobile platform imaging system, comprising:
  - an extendable refueling tube;
  - a plurality of light imageable targets positionable along an external surface of the tube;
  - each of the light imageable targets convertible into a pixel image;
  - and
  - each said pixel image being assignable to a coordinate system.
10. The imaging system of Claim 9, wherein the coordinate system defines both an elevation and an azimuth location for each light imageable target.
11. The imaging system of Claim 10, wherein the light imageable targets are divisible into each of a plurality of sets disposed circumferentially about the tube.
12. The imaging system of Claim 11, wherein each set comprises at least one light imageable target.
13. The imaging system of Claim 11, wherein each set comprises four light imageable targets each angularly separable by about 90 degrees about a diameter of the tube.

14. The imaging system of Claim 12, comprising:
  - a first set positionable adjacent a refueling nozzle; and
  - a second set spatially separable from the first set;wherein at least one the light imageable targets of the second set is positionable along a line-of-sight with a corresponding one of the light imageable targets of the first set.

15. An aircraft imaging system, comprising:
  - an aircraft having an extendable refueling tube;
  - at least one camera mountable on the aircraft having a line of sight encompassing at least a portion of the refueling tube, the camera operably creating one of a plurality of digital images and a plurality of video images; and
  - a computer system in communication with the camera operable to store any of the digital images and the video images as one of a plurality of pixel images;wherein one of the pixel images corresponding to at least one refueling tube surface point is comparable by the computer system to a corresponding surface point null position to operably determine a refueling tube deflection.
16. The system of Claim 15, wherein the refueling tube is extendable from an aft end of the aircraft.
17. The system of Claim 16, wherein the at least one camera comprises a pair of cameras, oppositely positionable about the refueling tube.
18. The system of Claim 15, wherein the camera is operable within a light range variable between visible light and ultraviolet light.

19. The system of Claim 15, wherein each camera comprises one of an analog camera operably creating the plurality of video images and a digital camera operably creating the plurality of digital images.

20. A system for supplying a fluid to a moving mobile platform from a fluid supply source, comprising:
- a conduit for supplying the fluid from the fluid supply to the mobile platform;
  - at least one targeting sight positionable on the conduit; and
  - at least one digital camera for imaging the targeting sight and for converting images of the targeting sight into a plurality of pixel images for assisting in positioning the conduit relative to the mobile platform.
21. The system of Claim 20, comprising a steering device connectable to the conduit for assisting in positioning the conduit relative to the mobile platform.
22. The system of Claim 20, wherein each said targeting sight comprises one of a passive reflector and an electrically energized light source.

23. A positioning system used to refuel a mobile platform via a conduit while the mobile platform is moving, from a fluid supply source in communication with the conduit, the positioning system comprising:

at least one target for identifying a specific location along the conduit;

at least one camera for imaging the target; and

a controller for both entering an image of the target into a coordinate system and for signaling a corrected position of the conduit by comparing the specific location along the conduit to the coordinate system.